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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,407	07/25/2003	Norman Poirier	PCC115	2821

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EXAMINER	
SCHINDLER, DAVID M	

ART UNIT	PAPER NUMBER
2862	

DATE MAILED: 12/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/627,407	POIRIER ET AL.	
	Examiner	Art Unit	
	David Schindler	2862	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 October 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3 and 8-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3 and 8-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 October 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Bot Ledynh
Primary Examiner

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to the communication received on 10/13/2005.

Claim Objections

2. Claims 3, 10, and 13 are objected to because of the following informalities:

As to Claim 3,

The term "multiples" on lines 5 and 9 appears to be incorrect as it appears this term should instead be "multiplies."

A to Claim 10,

The term "multiples" on line 6 appears to be incorrect as it appears this term should instead be "multiplies."

As to Claim 13,

The phrase "said fourth output" on line 3 lacks antecedent basis.

Appropriate correction is required.

3. It is noted to applicant that the below cited pages, lines, and figures for the Miyazaki reference come from an English translation that is provided with this action.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 1-3 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Miyazaki (JP 60162920A).

As to Claim 1,

Miyazaki discloses a rotor sensor including a magnet rotating about an axis and a plurality of magnetic field sensor angularly spaced about the axis (Figure 3), a first multiplier (26) configured to receive an input from a first of the magnetic field sensors and a first sinusoidal signal and provide a first output (Figure 3), a second multiplier (25) configured to receive an input from a second of the magnetic field sensors and a second sinusoidal signal and provide a second output (Figure 3), an adder circuit (27) configured to sum the first and the second outputs and provide a third output being the sum of the first output and the second output (Figure 3) (Page 3, Lines 8 – End of Page), an output circuit configured to receive the third output and provide a fourth output having characteristic proportional to the phase angle (Page 4, Lines 1-5).

As to Claim 2,

Miyazaki discloses the rotary sensor includes a first and a second magnetic field sensor spaced about 90 degrees apart about the axis (Figure 3).

As to Claim 3,

Miyazaki discloses the first multiplier includes an in phase multiplier which multiplies a sine input signal from the rotary sensor by the first sinusoidal signal (Figure 3), and the second multiplier includes a quadrature multiplier which multiplies a cosine input signal from the rotary sensor by the second sinusoidal signal (Figure 3).

As to Claim 8,

Miyazaki discloses the first and the second sinusoidal signals are provided by a quadrature oscillator (28) (Figure 3).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyazaki (JP 60162920A) in view of Dukart et al. (5,880,586).

As to Claim 9,

Miyazaki does not disclose a PWM to analog signal circuit coupled to the fourth output and configured to provide an analog output in response to the fourth output.

Dukart et al. discloses a PWM to analog signal circuit coupled to an output and configured to provide an analog output in response to the output (Column 6, Lines 48-64).

It would have been obvious to a person of ordinary skill in the art to modify Miyazaki to include a PWM to analog signal circuit coupled to the fourth output and configured to provide an analog output in response to the fourth output given the above disclosure and teaching of Dukart et al. in order to have a signal that is proportional to an angle of rotation of the magnet ((Column 4, Lines 52-54) and (Column 6, Lines 57-60)).

As to Claim 10,

Miyazaki discloses a rotating magnet and a first and second magnetic field sensor angularly spaced about the rotating magnet (Figure 3), an in phase (26) multiplier which multiplies an input from the first magnetic field sensor by a first sinusoidal signal to provide a first output (Figure 3), a quadrature multiplier (25) which multiplies an input from the second magnetic field sensor by a second sinusoidal signal to provide a second output (Figure 3), an adder (27) configured to receive the first and the second outputs and provide a third output being the sum of the first and the second outputs (Figure 3) (Page3, Lines 8 – End of Page), and an output circuit configured to receive the third output (Page 4, Lines 1-5).

Miyazaki does not disclose an output circuit configured to provide a pulse width modulated output having a characteristic proportional to the phase angle.

Dukart et al. discloses an output circuit configured to provide a pulse width modulated output having a characteristic proportional to the phase angle (Column 6, Lines 48-64).

It would have been obvious to a person of ordinary skill in the art to modify Miyazaki to include an output circuit configured to provide a pulse width modulated output having a characteristic proportional to the phase angle as taught by Dukart et al. in order to determine the angle of rotation of the magnet ((Column 4, Lines 52-54) and (Column 6, Lines 1-6)).

As to Claim 11,

Miyazaki discloses the first and the second magnetic field sensors are spaced about 90 degrees apart about the axis (Figure 3).

As to Claim 12,

Miyazaki discloses the first and the second sinusoidal signals are provided by a quadrature oscillator (28) (Figure 3).

As to Claim 13,

Miyazaki does not disclose a PWM to analog signal circuit coupled to the pulse width modulated output and configured to provide an analog output in response to the fourth output.

Dukart et al. discloses a PWM to analog signal circuit coupled to an output and configured to provide an analog output in response to the output (Column 6, Lines 48-64).

It would have been obvious to a person of ordinary skill in the art to modify Miyazaki to include a PWM to analog signal circuit coupled to the pulse width modulated output and configured to provide an analog output in response to the fourth output given the above disclosure and teaching of Dukart et al. in order to have a signal that is

proportional to an angle of rotation of the magnet ((Column 4, Lines 52-54) and (Column 6, Lines 57-60)).

Response to Arguments

9. Applicant's arguments with respect to claims 1-3 have been considered but are moot in view of the new ground(s) of rejection.

With respect to Applicant's comments regarding the Miyazaki reference as mentioned by Applicant in the first full paragraph of page 5 of the Remarks/Arguments Section, the Examiner respectfully disagrees. Please see the above Claim Rejections with regard to this.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Schindler whose telephone number is (571) 272-2112. The examiner can normally be reached on M-F (8:00 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (571) 272-2180. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David Schindler
Examiner
Art Unit 2862

DS